

an electro-optic modulator and retarder combination having an isotropic state and a modulation state, wherein the electro-optic modulator and retarder combination is adapted to selectively modulate input light that has a polarization state that corresponds to the modulation state of the electro-optic modulator and retarder combination.--

5

--3. The light modulator of claim 2, wherein the first and second polarizations output by the retarder stack are linear polarizations.--

--4. The light modulator of claim 2, wherein the electro-optic modulator and retarder combination comprises a variable retarder in combination with a passive quarter-wave retarder.--

--5. The light modulator of claim 4, wherein the modulation state is a linear polarization state and the isotropic state is a circular polarization state.--

--6. A light modulator having a stack-only mode and a stack-altered mode, comprising:

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a first retarder stack for receiving at least partially polarized input light;
an electro-optic modulator for receiving light from the first retarder stack;
a second retarder stack positioned to receive light output from the electro-optic modulator; and

5 an output polarizer for receiving and analyzing light from the second retarder stack;

wherein the first retarder stack, the electro-optic modulator, the second retarder stack and the output polarizer are adapted and oriented so that, in the stack-only mode, light transmitted by the output polarizer corresponds to a neutral state.--

--7. The light modulator of claim 6, wherein, in the stack-only mode, light transmitted by the output polarizer corresponds to a black state.--

--8. The light modulator of claim 7, wherein, in the stack-altered mode, light transmitted by the output polarizer corresponds to a primary filtered state.--

--9. The light modulator of claim 8, wherein the transmission of the primary filtered state by the output polarizer is continuously tunable.--

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--10. The light modulator of claim 8, wherein the primary filtered state is one of a red state, a green state and a blue state.--

--11. The light modulator of claim 7, wherein, in the stack-altered mode, light transmitted by the output polarizer corresponds to one of a red state, a green state and a blue state.--

--12. The light modulator of claim 6, wherein, in the stack-only mode, light transmitted by the output polarizer corresponds to a white state.--

--13. The light modulator of claim 12, wherein, in the stack-altered mode, light transmitted by the output polarizer corresponds to a primary filtered state.--

--14. The light modulator of claim 13, wherein the transmission of the primary filtered state by the output polarizer is continuously tunable.--

--15. The light modulator of claim 13, wherein the primary filtered state is one of a cyan state, a magenta state and a yellow state.--

--16. The light modulator of claim 12, wherein, in the stack-altered mode, light transmitted by the output polarizer corresponds to one of a cyan state, a magenta state and a yellow state.--

--17. A sequencer, comprising:

a first modulator stage, comprising:

a first input retarder stack for receiving and transforming the polarization of light,

5 a first electro-optic modulator for receiving and selectively modulating the polarization of a portion of light output by the first retarder stack, and

a first output retarder stack for receiving and transforming the polarization of light output by the first electro-optic modulator;

a second modulator stage, comprising:

10 a second input retarder stack for receiving and transforming the polarization of light,

a second electro-optic modulator for receiving and selectively modulating the polarization of a portion of light output by the second retarder stack, and

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a second output retarder stack for receiving and transforming the polarization of light output by the second electro-optic modulator; and

a third modulator stage, comprising:

a third input retarder stack for receiving and transforming the polarization of light,

a third electro-optic modulator for receiving and selectively modulating the polarization of a portion of light output by the third retarder stack, and

a third output retarder stack for receiving and transforming the polarization of light output by the third electro-optic modulator.--

--18. The sequencer of claim 17, wherein the first, second and third modulator stages function substantially independent of each other.--

--19. The sequencer of claim 17, wherein the first, second and third electro-optic modulators exhibit higher chromaticity in a stack-altered mode than in a stack-only mode.--

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--20. The sequencer of claim 19, wherein the first, second and third modulator stages each exhibit a filtered state and a neutral state when their respective electro-optic modulators are in the stack-altered mode and the stack-only mode, respectively.--

--21. The sequencer of claim 20, wherein the neutral state is a black state.--

--22. The sequencer of claim 20, wherein the neutral spectrum is a white state.--

--23. The sequencer of claim 19, wherein the first, second and third modulator stages each exhibit a filtered state and a neutral state when their respective electro-optic modulators are in the stack-only mode and the stack-altered mode, respectively.--


--24. The sequencer of claim 23, wherein the neutral state is a black state.--

--25. The sequencer of claim 23, wherein the neutral state is a white state.--

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--26. The sequencer of claim 17, wherein a state of each of the first, second and third modulator stages is switchable between one additive primary filtered state and a neutral state.--



--27. The sequencer of claim 26, wherein the state of the first, second and third modulator stages is switchable between red and black states, green and black states, and blue and black states, respectively.--

--28. The sequencer of claim 17, wherein a state of each of the first, second and third modulator stages is switchable between one subtractive primary filtered state and a neutral state.--

--29. The sequencer of claim 28, wherein the state of the first, second and third modulator stages is switchable between cyan and white states, magenta and white states, and yellow and white states, respectively.--

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--30. The sequencer of claim 17, wherein a peak transmission of one of said first, second and third modulator stages is tunable so that its peak transmission coincides with a peak transmission of a respective filtered state.--

--31. The sequencer of claim 17, wherein the first, second and third electro-optic modulators exhibit higher chromaticity in a stack-only mode than in a stack-altered mode.--

--32. The sequencer of claim 31, wherein the first, second and third modulator stages each exhibit a filtered state and a neutral state when their respective electro-optic modulators are in the stack-altered mode and the stack-only mode, respectively.--

--33. The sequencer of claim 32, wherein the neutral state is a black state.--

--34. The sequencer of claim 32, wherein the neutral state is a white state.--

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--35. The sequencer of claim 31, wherein the first, second and third modulator stages each exhibit a filtered state and a neutral state when their respective electro-optic modulators are in the stack-only mode and the stack-altered mode, respectively.--

--36. The sequencer of claim 35, wherein the neutral state is a black state.--

--37. The sequencer of claim 35, wherein the neutral state is a white state.--

--38. The sequencer of claim 17, wherein the first input retarder stack is an inverse of the first output retarder stack.--

--39. The sequencer of claim 17, wherein the second input retarder stack is an inverse of the second output retarder stack.--

--40. The sequencer of claim 17, wherein the third input retarder stack is an inverse of the third output retarder stack.--

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--41. The sequencer of claim 17, wherein the first, second and third input retarder stacks are inverses of the first, second and third output retarder stacks, respectively.--

--42. The sequencer of claim 17, wherein the first, second and third modulator stages together exhibit a neutral state in the stack-altered mode.--

--43. The sequencer of claim 42, wherein the neutral state is a white state.--

--44. The sequencer of claim 42, wherein the neutral state is a black state.--

--45. The sequencer of claim 42, wherein the polarization of input light received by the first modulator stage and the polarization of light output by the first modulator stage are matched.--

--46. The sequencer of claim 45, wherein the polarization of the input light is an eigenpolarization of the first modulator stage in the stack-altered mode.--

--47. The sequencer of claim 17, further comprising an analyzing polarizer positioned and oriented to receive and analyze light from the first, second and third modulator stages.--

--48. The sequencer of claim 47, wherein the first, second and third modulator stages each modulate the transmission of a respective spectrum between substantially full transmission and substantially zero transmission.--

--49. A reflection-mode light modulator for receiving input light and outputting modulated light, comprising:

an input polarizer;

a reflector;

5 an electro-optic modulator positioned between the input polarizer and the reflector; and

a retarder stack positioned between the input polarizer and the electro-optic modulator, said retarder stack comprising at least two retarders;

10 wherein the input polarizer, the retarder stack, the electro-optic modulator and the reflector are oriented and positioned in a reflection-mode arrangement.--

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--50. The reflection-mode light modulator of claim 49, wherein the reflection-mode arrangement is a retro-reflecting arrangement.--

--51. The reflection-mode light modulator of claim 49, wherein the polarizations of the input light and the output modulated light are substantially parallel.--

--52. The reflection-mode light modulator of claim 49, wherein the retarder stack comprises at least three retarders.--

--53. The reflection-mode light modulator of claim 52, wherein the at least three retarders comprise polycarbonate retarders.--

--54. The reflection-mode light modulator of claim 49, wherein the retardances of the at least two retarders stack are such that the modulated output light is a primary color.--

--55. A reflection-mode light modulator, comprising:
a polarizer;

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a reflector;

a first electro-optic modulator positioned between the input polarizer and the reflector;

a second electro-optic modulator positioned between the first electro-optic modulator and the reflector;

a third electro-optic modulator positioned between the second electro-optic modulator and the reflector;

a first retarder stack positioned between the input polarizer and the first electro-optic modulator;

10 a second retarder stack positioned between the first and second electro-optic modulators; and

a third retarder stack positioned between the second and third electro-optic modulators;

15 wherein the polarizer, the first, second and third retarder stacks, the first, second and third electro-optic modulators, and the reflector are oriented and positioned in a reflection-mode arrangement.--

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--56. The reflection-mode light modulator of claim 55, wherein the retardances and orientations of the first, second and third stacks are such that they each function substantially independent of each other.--

--57. The reflection-mode light modulator of claim 55, wherein the first, second and third electro-optic modulators each have a higher chromaticity in a stack-altered mode than in a stack-only mode.--

--58. A multi-stage in-line color filter, comprising:
a first stage for modulating a first spectrum in accordance with a first signal;
a second stage for modulating a second spectrum in accordance with a second signal;
5 a third stage for modulating a third spectrum in accordance with a third signal; and
an output polarizer.--

--59. The multi-stage in-line color filter of claim 58, wherein the first, second and third stages do not include a polarizer.--

--60. The multi-stage in-line color filter of claim 59, wherein the first, second and third stages modulate the polarization of the first, second and third spectrums, respectively, in accordance with the first, second and third signals, respectively.--

--61. The multi-stage in-line color filter of claim 58, wherein the first, second and third stages modulate the transmittance of the first, second and third spectrums, respectively.--

--62. The multi-stage in-line color filter of claim 61, wherein the transmittance of the first, second and third spectrums is continuously variable in accordance with the first, second and third signals, respectively.--

--63. The multi-stage in-line color filter of claim 58, wherein the first, second and third stages are each variable saturation filters.--

--64. The multi-stage in-line color filter of claim 58, wherein the first, second and third stages are each variable luminance filters.--

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--65. A color selective light modulator for a projector, comprising:

a first polarizer;

a second polarizer; and

a first modulator stage positioned between the first and second polarizers,

said first modulator stage exhibiting a red state in a stack-altered mode, and a black state in a stack-only mode;

a second modulator stage positioned between the first and second polarizers,

said second modulator stage exhibiting a green state in a stack-altered mode, and a black state in a stack-only mode; and

a third modulator stage positioned between the first and second polarizers,

said third modulator stage exhibiting a blue state in a stack-altered mode, and a black state in a stack-only mode.--

--66. The color selective light modulator of claim 65, wherein the orientations and retardances of the first, second and third modulator stages are such that they each operate substantially independent of each other.--

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--67. A method of modulating light with a variable retarder using retarder stacks for transforming light into two linear polarization states with two spectra, comprising the

• steps of:

arranging a first retarder stack which yields a first and second linear polarization with first and second spectra;

arranging a retarder which transforms the second linear polarization into elliptical polarization; and

arranging a variable retarder to receive the elliptical polarization and the first polarization.--

--68. The method of claim 67, wherein the elliptical polarization is circular polarization, and the second polarization is linear polarization.--

--69. The method of claim 67, wherein the elliptical polarization is a modulation state for the variable retarder.--